

Response under 37 C.F.R. 1.116  
Applicant: Joseph M. Torgerson et al.  
Serial No.: 10/827,030  
Filed: April 19, 2004  
Docket No.: 200210152-1  
Title: FLUID EJECTION DEVICE

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### REMARKS

The following Remarks are made in response to the Final Office Action mailed March 6, 2007, in which claims 1, 2, 4, 6-31, 33, 43, 44, 56, and 57 were rejected. Claims 51-55 and 58-63 were previously cancelled without prejudice, and claims 3, 5, 32, 34-42, and 45-50 were withdrawn from consideration as being directed to a non-elected Species.

Claims 1, 2, 4, 6-31, 33, 43, 44, 56, and 57 remain pending in the application and are presented for reconsideration and allowance.

### Claim Rejections under 35 U.S.C. § 102 and 35 U.S.C. § 103

Claims 1, 2, 4, 6, 7, 21-24, 24, 43, 44, 56, and 57 are rejected under 35 U.S.C. 102(b) as being anticipated by Maze et al. US Publication No. 2001/0008411.

Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maze et al. US Publication No. 2001/0008411 in view of Bhaskar et al. US Patent No. 5,808,640.

Claims 10-19, 25, 27-31, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maze et al. US Publication No. 2001/0008411 in view of Cleland et al. US Patent No. 6,491,377.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maze et al. US Publication No. 2001/0008411 in view of Chen et al. US Publication No. 2002/0135640.

Applicant respectfully traverses these rejections.

Independent claim 1 includes "a first fluid feed slot formed in the substrate and having a first fluid feed slot edge," and "a reference conductor formed on the substrate and configured to conduct the first current from the first firing resistors, wherein the reference conductor is disposed under the fluid path in an area between the first fluid feed slot edge and the first firing resistors."

Independent claim 22 includes "a first fluid feed slot formed in the substrate and having a first fluid feed slot edge," and "a reference conductor formed on the substrate and disposed under the fluid path in an area between the first vaporization chambers and the first fluid feed slot edge."

Independent claim 43 includes "receiving fluid via a fluid path at first firing resistors disposed along a first fluid feed slot formed in a substrate, the first fluid feed slot having a first fluid feed slot edge and the fluid path extending between the first fluid

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**feed slot edge and the first firing resistors" and "receiving the first current from the first firing resistors at a reference conductor formed on the substrate under the fluid path in an area between the first fluid feed slot edge and the first firing resistors."**

**Independent claim 56 includes "a first fluid feed slot formed in the substrate," and "a reference conductor disposed under the fluid path in an area between an edge of the first fluid feed slot and the first vaporization chambers."**

With reference to Figures 3, 5, and 9, and paragraph [0032], the Examiner contends that the Maze et al. publication discloses, with reference to independent claim 1, a reference conductor formed on the substrate and configured to conduct the first current from the first firing resistors, wherein the reference conductor is disposed under the fluid path in an area between the first fluid feed slot edge and the first firing resistors (Final Office Action, page 2), discloses, with reference to independent claim 22, a reference conductor formed on the substrate and disposed under the fluid path in an area between the first vaporization chambers and the first fluid feed slot edge (Final Office Action, page 4), discloses, with reference to independent claim 43, receiving the first current from the first firing resistors at a reference conductor formed on the substrate under the fluid path in an area between the first fluid feed slot edge and the first firing resistor (Final Office Action, page 5), and discloses, with reference to independent claim 56, a reference conductor disposed under the fluid path in an area between the edge of a first fluid feed slot and first vaporization chambers (Final Office Action, page 5).

With reference to Fig. 3, the Maze et al. publication discloses an ink firing chamber 301, a nozzle 303, and a heater resistor 309, wherein ink is supplied to ink firing chamber 301 via opening 307, and the ink firing chamber is bounded by walls created by an orifice plate 311, a layered semiconductor substrate 313, and firing chamber walls 315, 317 (para. [0028]). In addition, with reference to Fig. 5, the Maze et al. publication discloses a heater resistor 501 and its associated conductors 503, 505 with the electrical conductors "physically connected to the heater resistor on opposite sides of the planar heater resistor" such that electric current can flow from the conductor disposed "on one side of the heater resistor," through the heater resistor, to the other conductor. (para. [0032]).

Conductors 503 and 505 of the Maze et al. publication, therefore, are provided on "opposite sides" of heater resistor 501. For example, in the embodiment of Fig. 3 of the

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Maze et al. publication, conductors 503 and 505 are provided under firing chamber walls 315 and 317, respectively. As such, with conductors 503 and 505 provided under firing chamber walls 315 and 317, and ink being supplied to ink firing chamber 301 via opening 307, conductors 503 and 505 are not disposed under a fluid path in an area between a first fluid feed slot edge and first firing resistors or first vaporization chambers as claimed in independent claims 1, 22, 43, and 56.

In view of the above, Applicant submits that independent claims 1, 22, 43, and 56 are each patentably distinct from the Maze et al. publication and, therefore, are each in a condition for allowance. Furthermore, as dependent claims 2-21 further define patentably distinct claim 1, dependent claims 23-34 further define patentably distinct claim 22, dependent claim 44 further defines patentably distinct claim 43, and dependent claim 57 further defines patentably distinct claim 56, Applicant submits that these dependent claims are also in a condition for allowance. Applicant, therefore, respectfully requests that the rejections of claims 1, 2, 4, 6, 7, 21-24, 24, 43, 44, 56, and 57 under 102(b) and claims 8 and 9, claims 10-19, 25, 27-31, and 33, and claim 20 under 35 U.S.C. 103(a) be reconsidered and withdrawn, and that claims 1, 2, 4, 6-31, 22, 43, 44, 56, and 57 be allowed.

Claims 1, 22, 43, and 56 are rejected under 35 U.S.C. 102(b) as being anticipated by Meyer US Publication No. 2002/0109755.

Applicant respectfully traverses this rejection.

As outlined above, independent claim 1 includes **"a first fluid feed slot formed in the substrate and having a first fluid feed slot edge," and "a reference conductor formed on the substrate and configured to conduct the first current from the first firing resistors, wherein the reference conductor is disposed under the fluid path in an area between the first fluid feed slot edge and the first firing resistors."**

As outlined above, independent claim 22 includes **"a first fluid feed slot formed in the substrate and having a first fluid feed slot edge," and "a reference conductor formed on the substrate and disposed under the fluid path in an area between the first vaporization chambers and the first fluid feed slot edge."**

As outlined above, independent claim 43 includes **"receiving fluid via a fluid path at first firing resistors disposed along a first fluid feed slot formed in a substrate, the first fluid feed slot having a first fluid feed slot edge and the fluid path extending**

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**between the first fluid feed slot edge and the first firing resistors" and "receiving the first current from the first firing resistors at a reference conductor formed on the substrate under the fluid path in an area between the first fluid feed slot edge and the first firing resistors."**

As outlined above, independent claim 56 includes **"a first fluid feed slot formed in the substrate," and "a reference conductor disposed under the fluid path in an area between an edge of the first fluid feed slot and the first vaporization chambers."**

With reference to Figure 1 element 40, and paragraph [0024], the Examiner contends that the Meyer publication discloses, with reference to independent claim 1, a reference conductor formed on the substrate and configured to conduct the first current from the first firing resistors, wherein the reference conductor is disposed under the fluid path in an area between the first fluid feed slot edge and the first firing resistors (Final Office Action, page 6), discloses, with reference to independent claim 22, a reference conductor formed on the substrate and disposed under the fluid path in an area between the first vaporization chambers and the first fluid feed slot edge (Final Office Action, page 6), discloses, with reference to independent claim 43, receiving the first current from the first firing resistors at a reference conductor formed on the substrate under the fluid path in an area between the first fluid feed slot edge and the first firing resistor (Final Office Action, page 7), and discloses, with reference to independent claim 56, a reference conductor disposed under the fluid path in an area between the edge of a first fluid feed slot and first vaporization chambers (Final Office Action, page 7).

With reference to Figs. 2 and 3, the Meyer publication discloses a printhead assembly 10 including a substrate 12 with one or more openings or pores 24 extending through the substrate, an ink supply 14, and one or more ink ejection mechanisms 16 formed or mounted on the substrate such that pores 24 are adapted to allow ink to flow through the substrate from ink supply 14 to ink ejection mechanisms 16 (para. [0018]). In addition, the Meyer publication discloses that each ink ejection mechanism 16 includes a firing chamber 30, one or more firing resistors 38, and one or more conductor traces 40 connected to supply electrical current to firing resistors 38 (para. [0023]-[0024]).

As such, with the printhead assembly of the Meyer publication, ink is provided to or received in firing chamber 30 of ink ejection mechanism 16 through pores 24 of substrate 12.

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As ink flows through substrate 12 to ink ejection mechanism 16, and ink ejection mechanism 16 including conductor traces 40 is formed or mounted on substrate 12, conductor traces 40 are not disposed under a fluid path in an area between a first fluid feed slot edge and first firing resistors or first vaporization chambers as claimed in independent claims 1, 22, 43, and 56.

In view of the above, Applicant submits that independent claims 1, 22, 43, and 56 are each patentably distinct from the Meyer publication and, therefore, are each in a condition for allowance. Applicant, therefore, respectfully requests that the rejection of claims 1, 22, 43, and 56 under 35 U.S.C. 102(b) be reconsidered and withdrawn, and that claims 1, 22, 43, and 56 be allowed.

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### CONCLUSION

In view of the above, Applicant respectfully submits that pending claims 1, 2, 4, 6-31, 22, 43, 44, 56, and 57 are all in a condition for allowance and requests reconsideration of the application and allowance of all pending claims.

Any inquiry regarding this Response should be directed to either Donald J. Coulman at Telephone No. (541) 715-1694, Facsimile No. (541) 715-8581 or Scott A. Lund at Telephone No. (612) 573-2006, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

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Respectfully submitted,

Joseph M. Torgerson et al.,

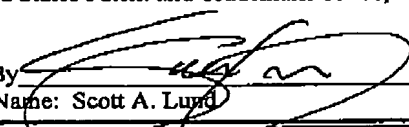
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CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this paper or papers, as described herein, are being facsimile transmitted to the United States Patent and Trademark Office, Fax No. (571) 273-8300 on this 7<sup>TH</sup> day of May, 2007.

By   
Name: Scott A. Lund